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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/594,568

11/01/2006

Ralph Edmund Harris

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NIXON & VANDERHYE, PC
901 NORTH GLEBE ROAD, 11TH FLOOR
ARLINGTON, VA 22203

EXAMINER

DITRANI, ANGELA M

ART UNIT

PAPER NUMBER

3676

MAIL DATE

DELIVERY MODE

11/12/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/594,568	Applicant(s) HARRIS ET AL.	
	Examiner Angela M. DiTrani	Art Unit 3676	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 August 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 41-67 and 76 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 41-67 and 76 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>08/18/08</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 41-51, 59-64, and new claim 76 are rejected under 35 U.S.C. 102(e) as being anticipated by Willberg et al. (US 7,265,079 – cited in previous action).

With respect to claim 41, Willber et al. discloses a process for disrupting filter cake in an underground formation, which process comprises: (i) incorporating into a treatment fluid a solid polymer capable of being converted by hydrolysis into one or more organic acids; (ii) introducing the treatment fluid into the underground formation; and (iii) allowing the solid polymer to hydrolyze in the presence of water to produce organic acid such that acid soluble material within the filter cake or adjacent formation is dissolved (see entire disclosure, esp. col. 2, line 53-col. 3, line 4; col. 5, lines 22-35).

With respect to depending claims 42-46, the reference teaches the solid polymer as claimed (see col. 2, line 53-col. 4, line 12).

With respect to depending claims 47-49, the reference teaches one or more other materials, chemicals, catalysts or enzymes incorporated into the solid polymer by encapsulation to allow their controlled release coincident with or after acid production, and further wherein said one or more other materials, chemicals, catalysts or enzymes

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are incorporated into the solid polymer by dissolution or dispersion to allow controlled release coincident with acid production and wherein said one or more other materials from the solid polymer have functional activity for filter cake treatment or as production chemicals (see esp. col. 3, lines 34-36; col. 4, lines 41-61).

With respect to depending claim 50, the reference teaches the solid polymer used in the form as claimed (see col. 4, lines 41-44).

With respect to depending claim 51, the reference teaches incorporating a buffer into the treatment fluid (see col. 3, lines 34-36).

With respect to depending claims 59-64, the reference teaches the gravel packing fluid comprising one or more solid polymers; the disruption or degradation of at least a portion of the filter cake and increases the permeability of the formation; the portion of the polymer remaining in the underground formation and continuously releasing organic acid and production chemical during hydrocarbon production or water injection until the polymer has completely hydrolyzed; the formation containing a hydrocarbon or water and the process further comprising recovering a hydrocarbon or water; the treatment fluid introduced into the formation via a well bore which extends to the formation; and wherein the treatment fluid comprises an acid sensitive viscosifying agent and wherein the viscosity of the fluid is reduced by the acid generated by hydrolysis of the solid polymer (see esp. col. 2, lines 23-44; col. 7, lines 1-41).

With respect to dependent claim 76, Willberg et al. discloses a process according to claim 48 wherein the said one or more other materials, chemicals, catalysts or

enzymes released from the solid polymer have functional activity for filter cake treatment of as production chemicals (see esp. col. 3, lines 34-36; col. 4, lines 41-61).

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 52-58 and 65-67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Willberg et al. as applied to claim 41 above, and further in view of Harris et al. (WO 01/02698 – cited in previous action).

With respect to depending claims 52-57, Willberg et al. discloses the method as stated above with respect to claim 41. The reference, however, fails to teach the process wherein the treatment fluid further comprises one or more polymer breakers, wherein the polymer breaker is a hydrolase enzyme; a polysaccharide hydrolyzing enzyme; an enzyme which can hydrolyze starch, xanthan, cellulose, guar, scleroglucan, or succinoglycan; and an oxidant, wherein the oxidant is further selected from the group as claimed. Harris et al. teaches a method of treating an underground reservoir wherein an ester that has hydrolyzed to produce an organic acid is employed for the purpose of dissolving acid soluble material present within the reservoir, such as that which is present within a filter cake; the ester may be combined with a suitable polymer breaker, including a polymer breaker enzyme, such as a polysaccharide degrading enzyme or an oxidative breaker, selected from a group including persulphates, peroxides, perborates, and percarbonates, for the purpose degrading polymers within polysaccharide thickened compositions, thereby reducing viscosity, as well as for the purpose of

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disrupting filter cakes; the addition of the breaker to the treatment fluid comprising the ester enhances the effectiveness of the disclosed treatment operation (see p. 7, line 12-p. 11, line 19). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide for the inclusion of a polymer breaker, such as an enzyme or oxidant as taught by Harris et al. within the method and composition of Willberg et al. in order to enhance the effectiveness of the filter cake destruction by including an additional polymer breaking compound therein.

With respect to depending claim 58, Willberg et al. further fails to teach wherein the polymer breaker is in the form of a delayed release preparation. Harris et al. teaches delayed release preparations with oxidants, enzymes and catalysts, wherein such methods are well known by those skilled in the art (p. 13, lines 4-5). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further provide for the polymer breaker of Harris et al. within the method of Willberg et al. wherein the polymer breaker is in the form of a delayed release preparation.

With respect to depending claim 65, Willberg et al. discloses the method as stated above wherein the acid generated in the self-destruction process may function as a breaker for synthetic polymer and biopolymer viscosifying agents. The reference, however, fails to explicitly teach the method wherein the viscosifying agent is a borate crosslinked guar gum. Harris et al. teaches the use of acids for the purpose of breaking acid viscosified gels, such as a crosslinked guar-borate gel, used in oilfield applications (p. 2, lines 15-17). Therefore, it would have been obvious to one having ordinary skill in

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the art at the time the invention was made to employ the self-destructive acid producing composition of Willberg et al. in order to achieve the predictable result of breaking a viscosified gel comprising a crosslinked guar-borate gel.

With respect to depending claim 66, Willberg et al. discloses the method as stated above with respect to claim 41. The reference, however, fails to teach the treatment fluid further comprising calcium peroxide wherein the organic acid produced by hydrolysis of the solid polymer leads to the generation of hydrogen peroxide. Harris et al. teaches the inclusion of calcium peroxide within an organic acid producing treatment fluid for the purpose of generating hydrogen peroxide under acidic conditions; the development of acidic conditions within the wellbore upon the hydrolysis of the organic acid activates the decomposition of the calcium peroxide, thereby enhancing the activity of the polymer breaker (see p. 9, line 31-col. 10, line 4). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include calcium peroxide as taught by Harris et al. within the organic acid producing treatment composition of Willberg et al. in order to yield the predictable result of enhancing the polymer breaking activity and destruction of the filter cake therein.

6. Claim 67 is rejected under 35 U.S.C. 103(a) as being unpatentable over Willberg et al. as applied to claim 41 above and further, in view of Constien (US 6,831,044 – cited in previous action).

Willberg et al. discloses the method with respect to claim 41 as stated above. The reference, however, fails to teach the treatment fluid further comprising ammonium bifluoride and wherein the organic acid produced by hydrolysis of the solid polymer

leads to generation of hydrogen fluoride. Constien teaches an organic acid treatment composition comprising an ester and acid producing material, such as a polyglycolic acid, wherein the acid is preferably a solid at standard conditions; the organic acid may be used in combination with ammonium bifluoride for the purpose of degrading filter cakes with a more effective composition that is used to hydrolyze polysaccharide materials (see col. 7, lines 21-46). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate ammonium bifluoride within treatment composition of Willberg et al. in order to enhance the treatment operation therein.

Response to Arguments

7. Applicant's arguments, filed 08/18/08, with respect to the 35 USC 112 rejection of claim 48, and amendment thereof have been fully considered and are persuasive. The 35 USC 112 rejection of claim 48 has been withdrawn.

8. Applicant's arguments filed 08/18/08 have been fully considered but they are not persuasive. With respect to the 35 USC 102 rejections of claims 41-51 and 59-64, Applicant presents that Willberg et al. relates to compositions and methods for self-destructing filter cakes in well bores and in subterranean formations and that the composition of Willberg et al. is itself a filter cake. Applicants further asserts that the "solid acid-precursor" of Willberg et al. is present in a completely different context from the solid polymer of the present invention in that the "solid acid-precursor" of Willberg et al. is present as a solid mixture with an acid-reactive material, which is capable of creating a filter cake while the solid polymer of the present invention is incorporated into

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a treatment fluid which is capable of disrupting a filter cake. The Examiner disagrees.

As claimed, Applicant provides for the disruption of a filter cake in an underground formation, wherein the process comprises the incorporation into a treatment fluid a solid polymer capable of being converted by hydrolysis into one or more organic acids and the introduction of the treatment fluid into the underground formation. Willberg et al. discloses the incorporation of a solid polymer capable of being converted by hydrolysis into one or more organic acids into a treatment fluid and introduction of the treatment fluid into the underground formation within the disclosure of '079, wherein a solid polymer, in the form of a solid acid-precursor that is further disclosed as being comprised of the same polymers as Applicant presents are used as the solid polymer within the present invention (col. 2, l. 53-col. 3, l. 49), is incorporated into a treatment fluid, such as a drilling fluid, drill-in fluid, completion fluid, diversion fluid, and stimulation fluid (col. 2, l. 37-40). Therefore, Willberg et al. discloses a process comprising (i) and (ii) of Applicant's claim 41. Applicant further claims within the process of claim 41 allowing the solid polymer to hydrolyze in the presence of water to produce organic acid such that acid soluble material within the filter cake or adjacent formation is dissolved. Willberg et al. discloses that in the presence of water, the solid acid-precursor dissolves solid-acid reactive material that is within the filter cake (abstract; col. 3, l. 50-col. 4, l. 12). Therefore, the solid polymer of Willberg et al. hydrolyses in the presence of water to produce an organic acid that dissolves the acid soluble material within the filter cake. Willberg et al., therefore, discloses a process for disrupting filter cake in an underground

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formation as claimed within independent claim 41 and the rejection of independent claim 41 and its dependents 42-51 and 59-64 under 35 USC 102(e), therefore, stands.

Applicant further presents that the composition of Willberg et al. would not be suitable for disrupting a pre-existing filter cake in an underground formation, which is the object of the process being claimed. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., a pre-existing filter cake and the exogenous breaking action of the solid polymer in the treatment fluid) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

9. Applicant's arguments with respect to the 35 USC 103 rejections of claims 52-58 and 65-67 have been fully considered but they are not persuasive. Applicant submits that the subject-matter of independent claim 41 has been established as novel over Willberg et al., and, is also non-obvious over Willberg et al. in view of Harris et al.. As provided above within the response to the rejection of claim 41, the Examiner disagrees and the rejection of independent claim 41 as anticipated by Willberg et al. stands. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the incorporation of a solid polymer into the treatment fluid which is capable of exogenously disrupting a filter cake present in an underground formation) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification,

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limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant further asserts that Harris fails to remedy the deficiencies of Willberg et al.. As presented above, Willberg et al. anticipates the process defined by claim 41. Applicant further asserts that the esters of Harris et al. are liquids and there is no suggestion at all that solid polymers could be used to replace the liquid esters. The Examiner would like to note that within the rejection of claims 52-58 and 65-67 presented, the replacement of the liquid esters of Harris et al. with solid polymers was not suggested (see rejection of claims 52-58 and 65-67 above).

The rejection of dependent claims 52-58 and 65-67 as set forth above, therefore, stands.

10. Applicant's arguments with respect to the rejection of claim 67 as unpatentable over Willberg et al. in view of Constien et al. have been fully considered but they are not persuasive. Applicant again submits that the subject-matter of independent claim 41 has been established as novel over Willberg et al., and, is also non-obvious over Willberg et al. in view of Constien et al.. As provided above within the response to the rejection of claim 41, the Examiner disagrees and the rejection of independent claim 41 as anticipated by Willberg et al. stands. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the incorporation of a solid polymer into the treatment fluid which is capable of exogenously disrupting a filter cake present in an underground formation) are not recited in the rejected claim(s). Although the claims are

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interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant further presents that there is no reference in Constien et al. to use a treatment fluid of any sort, and still less of such a fluid in which a solid polymer has been incorporated. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the disclosure of Constien is relied upon for the teaching of the use of an organic acid in combination with ammonium bifluoride for the purpose of more effectively degrading filter cake. Therefore, the rejection of claim 67 as unpatentable over Willberg et al. in view of Constien et al. stands.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela M. DiTrani whose telephone number is (571)272-2182. The examiner can normally be reached on M-F, 6:30AM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer Gay can be reached on (571)272-7029. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AD

11/05/08

/Zakiya W. Bates/

Primary Examiner, Art Unit 3676